Record of Modification

Phase II Site Characterization Sampling and Analysis Plan Field Activities
Columbia Fall Aluminum Company RI/FS
Phase II SAP MOD #2

Instructions to Requester: **Submit to Roux RI Manager or Roux RI/FS Project Manager**
Roux RI Manager will maintain legible copies in a binder that can be accessed by personnel.

Project Work Plan/QAPP (check one)**:**

[X] 2018 Phase II SAP / Draft Background Investigation SAP

[ ] SOP (Title, # and approval date): _____

Requester: Laura Jensen, Project Hydrogeologist Date: June 15, 2018

Applicable section of SAP/SOP:

Phase II SAP, Section 4.5 (Soil Borings and Soil Sampling), subsection Dioxins and Furans outside the Rectifier Yards

Description of Modification:

Select Phase II soil borings and additional proposed soil borings will be analyzed for polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) in surficial and shallow soils.

Rationale for Modifications / Potential Implications of Modifications:

As part of the Phase II Site Characterization soil sampling program, CFAC/Roux collected surficial and shallow soil samples from eight soil boring locations outside of the Rectifier Yards to delineate the extent of PCDDs/PCDFs identified in the Phase I and to determine if the PCDDs/PCDFs are confined to the rectifier yards. This sampling was completed by Roux personnel on April 28, 2018.

The results of the sampling are presented as thematic dot maps on Plates 1, and Figures 1 and 2. Dioxins and furans were detected in each sample from outside the Rectifier Yards; indicating that these constituents are not confined to the Rectifier Yards. CFAC/Roux reviewed the Montana Dioxin Background Investigation Report (MDEQ, 2011) to gain insight on quantified regional estimates of background concentrations. The MDEQ study indicated that dioxins and furans were detected in every sample collected (a total of 12 samples distributed across Montana). Plate 2 presents the onsite data compared to the Montana Background Upper Tolerance Limit (UTL) for rural data, Montana Background UTL for urban and rural data, and Montana Background UTL for urban and industrial data. Comparison of the CFAC Site data collected inside and outside the Rectifier Yards to the Montana Background values revealed that the majority of CFAC samples contained dioxins and furans at concentrations less than the Montana Background UTL for rural and urban data. These data suggest that there could be a background contribution to dioxin and furan concentrations being detected at the Site.

Based on the above, it was determined that additional samples should be collected from other locations within the Main Plant Area, as well as one of the undeveloped areas of the Site, in order to develop a better understanding of the distribution and concentrations of dioxins and furans at the Site. In addition, dioxins and furans will also be added to the draft Background SAP prior to finalization of that document.

Proposed Modification Scope of Work:
To further characterize dioxins and furans at the Site, 10 additional surface and shallow samples are proposed to be collected in the Main Plant Area/north of the Main Plant building to further characterize dioxins and furans in this industrial area, and to delineate the eastern extent of dioxins and furans along the rail. Additionally, 10 surface and shallow samples are proposed to be collected in the Western Undeveloped Area to characterize dioxin and furan detections in this undeveloped area.

The proposed locations of soil borings to be analyzed for dioxins and furans are attached as Figure 3. Some soil borings were already proposed for collection as part of the Phase II, and some new soil borings are proposed to be added to the scope in order to properly characterize the areas. The results of this analysis will be evaluated in the Phase II Data Summary Report.

Last, dioxins and furans are proposed to be added to the 30 surficial soil samples included in the draft Background Investigation SAP (currently under review by EPA/MDEQ) to characterize dioxins and furans in areas outside the Site that are unaffected by historic Site operations or other readily identifiable, anthropogenic sources of contamination. A Site-specific background value for dioxins and furans would allow CFAC/Roux to better understand the occurrence and concentrations of these contaminants in background references areas to frame the results of the risk assessment with respect to dioxins and furans. If USEPA concurs with this approach, CFAC/Roux will add this scope to the revised Background Investigation SAP. The results of this analysis will be evaluated in the Phase II Data Summary Report.

All samples will be analyzed for PCDD/PCDF via USEPA Method 8290A.

Data Quality Objectives:
The goals and scope of the additional onsite sampling to further characterize dioxins and furans were developed consistent with the DQOs outlined in the Phase II SAP.

The goals and scope of the additional background sampling to further characterize regional concentrations of dioxins and furans were developed consistent with the DQOs outlined in the draft Background Investigation SAP.

References:
Montana Department of Environmental Quality, 2011. Montana Dioxin Background Investigation Report.

Duration of Modification (Check one):

☐ Temporary

Date(s) _____

Sample Numbers Affected Existing Locations – CFSB-168, 172, 188, 189, 190, 205, 206, 213, 215, 216,

New Locations – CFSB-288, 289, 290, 291, 292

☒ Permanent (Proposed Text Modification Section) Effective Date: June 15, 2018

Proposed Text Modifications in Associated Document:

This form serves to document the change as described above, no document revisions are proposed.

Data Quality Indicator (check one) – Please reference definitions on next page for direction on selecting data quality indicators:

☐ **Not Applicable** ☐ **Reject** ☐ **Low Bias** ☐ **Estimate** ☐ **High Bias** ☒ **No Bias**

Roux Project Manager Approval: Laura Jensen Date: June 15, 2018
(Roux RI/FS Project Manager or designate)

EPA Review and Approval: Mike Cirian Date: _____
(USEPA RPM or designate)

DATA QUALITY INDICATOR DEFINITIONS

Reject – Samples associated with this modification form are not useable. The conditions outlined in the modification form adversely affect the associated sample to such a degree that the data are not reliable.

Low Bias – Samples associated with this modification form are useable, but results are likely to be biased low. The conditions outlined in the modification form suggest that associated sample data are reliable, but estimated low.

Estimate – Samples associated with this modification form are useable, but results should be considered approximations. The conditions outlined in the modification form suggest that associated sample data are reliable, but estimates.

High Bias – Samples associated with this modification form are useable, but results are likely to be biased high. The conditions outlined in the modification form suggest that associated sample data are reliable, but estimated high.

No Bias – Samples associated with this modification form are useable as reported. The conditions outlined in the modification form suggest that associated sample data are reliable as reported.